过程与工艺

A Novel Routine for Manufacture of Environmentally Friendly Ethanol Fuel via Reactive Distillation

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摘要 A novel routine for removing water from ethanol by the hydration using C4 olefin cut catalyzed with the ion exchange resin was proposed. Reactive distillation experiments were carried out to demonstrate the feasibility of this routine. The sensitivity analysis was performed by using the software of ASPEN PLUS 10.2. The optimized operating conditions were obtained considering three objective functions which were the water content of the bottom product, water conversion rate and hydration selectivity. Under the optimized operation conditions, the final product was consisted of 45.0% of ethanol, 19.4% of ethyl tert-butyl ether, 35.1% of tert-butyl alcohol and 0.6% of water in volumetric percentage.

关键词 ethanol fuel,reactive distillation,bio-ethanol,ASPEN PLUS

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